

In the Claims

1. (Currently Amended) An agricultural bale equipment accumulator comprising:
~~a field position locator adapted to determine a location of the agricultural bale equipment in a field; and~~
~~a load bed adapted to receive, along a bale receiving axis, agricultural bales of crop material formed by and ejected from an agricultural baler, and adapted to accumulate the agricultural bales on the load bed; and~~
~~a controller adapted to control an operation of the agricultural bale equipment accumulator responsive to the receiving a location signal representative of a location of the agricultural bale equipment accumulator in the an agricultural field.~~
2. (Currently Amended) An agricultural bale equipment accumulator, according to claim 1, wherein ~~the controller controls~~ the operation of the agricultural bale equipment accumulator further comprises:
~~by determining a determination of a number of agricultural bales formed by the agricultural bale equipment.~~
3. (Currently Amended) An agricultural bale equipment accumulator, according to claim 1, wherein ~~the controller controls~~ the operation of the agricultural bale equipment accumulator further comprises:
~~by determining a determination of a size of the agricultural bales formed by the agricultural bale equipment.~~
4. (Currently Amended) An agricultural bale equipment accumulator, according to claim 1, wherein ~~the controller controls~~ the operation of the agricultural bale equipment accumulator further comprises:
~~by determining a determination of a moisture content of the agricultural bales formed by the agricultural bale equipment.~~
5. (Currently Amended) An agricultural bale equipment accumulator, according to claim 1, wherein ~~the controller controls~~ the operation of the agricultural bale equipment accumulator further comprises:

~~by determining a determination of a weight of the agricultural bales formed by the agricultural bale equipment.~~

6. (Currently Amended) An agricultural bale equipment accumulator, according to claim 1, wherein ~~the controller controls~~ the operation of the agricultural bale equipment accumulator further comprises:

~~by determining a determination of a location of at least one of the agricultural bales discharged in the agricultural field by the agricultural bale equipment from the load bed.~~

7. (Currently Amended) An agricultural bale equipment accumulator, according to claim 1, wherein ~~the controller controls~~ the operation of the agricultural bale equipment accumulator further comprises:

~~by determining a determination of a distance traveled in the agricultural field by the agricultural bale equipment accumulator.~~

8. (Currently Amended) An agricultural bale equipment accumulator, according to claim 1, wherein ~~the controller controls~~ the operation of the agricultural bale equipment accumulator further comprises:

~~by determining a determination of a path traveled in the agricultural field by the agricultural bale equipment accumulator.~~

9. (Currently Amended) An agricultural bale equipment accumulator, according to claim 1, wherein ~~the controller controls~~ the operation of the agricultural bale equipment accumulator further comprises:

~~by determining a determination of a contour of the agricultural field traveled by the agricultural bale equipment accumulator.~~

10. (Currently Amended) An agricultural bale equipment accumulator, according to claim 1, wherein ~~the controller controls~~ the operation of the agricultural bale equipment accumulator further comprises:

~~by determining a determination of a size of the agricultural field traveled by the agricultural bale equipment accumulator.~~

11. (Currently Amended) An agricultural bale equipment accumulator, according to claim 1, ~~wherein the field position locator further comprises~~ing:

a field position locator adapted to provide the location signal.

~~a global positioning satellite (GPS) receiver adapted to receive a plurality of input signals, transmitted by a plurality of satellites located around the earth, representative of the location of the agricultural bale equipment in the field.~~

12. (Currently Amended) An agricultural bale equipment accumulator, according to claim 11, ~~wherein the agricultural bale equipment field position locator further comprises: a baler~~ a global positioning system (GPS) receiver.

13. (Currently Amended) An agricultural bale equipment accumulator, according to claim 11, ~~wherein the agricultural bale equipment further comprises a bale accumulator field position locator is carried by one of the following:~~

the agricultural bale accumulator;

the agricultural baler, which is adapted to tow the agricultural bale accumulator; and

a tractor, which is adapted to tow the agricultural baler, which is adapted to tow the agricultural bale accumulator.

14. (Currently Amended) An agricultural bale equipment accumulator, according to claim 13, ~~wherein the agricultural bale equipment further comprises:~~

~~— a base module including a load bed adapted to receive a plurality of bales along a bale receiving axis, and adapted to accumulate thereon the plurality of bales;~~

~~— wherein the controller controls the operation of the agricultural bale equipment accumulator further comprises:~~

~~by the controlling control of the receipt and/or the accumulation of the plurality of bales agricultural bales on the load bed.~~

15. (Currently Amended) An agricultural bale equipment accumulator, according to claim 14, ~~wherein the agricultural bale equipment further comprises~~ing:

~~a bale transfer module adapted to transfer at least one agricultural bale of the plurality of bales agricultural bales across the load bed along a bale transfer axis, horizontally transverse to the bale receiving axis, responsive to receiving the plurality of bales agricultural bales being received on the load bed,~~

wherein the controller controls the receipt and/or the accumulation of the plurality of bales-agricultural bales on the load bed by controlling the bale transfer module.

16. (Currently Amended) An agricultural bale equipment-accumulator, according to claim 14, wherein the agricultural bale equipment further comprisesing:

a bale stacking module adapted to form at least one stack of agricultural bales, including at least two agricultural bales of the plurality of bales-agricultural bales, along a bale stacking axis, vertically transverse to the bale receiving axis, responsive to receiving the plurality of bales-agricultural bales being received on the load bed,

wherein the controller controls the receipt and/or the accumulation of the plurality of bales-agricultural bales on the load bed by controlling the bale stacking module.

17. (Currently Amended) An agricultural bale equipment-accumulator, according to claim 14, wherein the agricultural bale equipment further comprisesing:

a bale arrangement control module adapted to arrange at least one agricultural bale of the plurality of bales-agricultural bales on the load bed responsive to the plurality of bales-agricultural bales being received on the load bed,

wherein the controller controls the receipt and/or the accumulation of the plurality of bales-agricultural bales on the load bed by controlling the bale arrangement control module.

18. (Currently Amended) An agricultural bale equipment-accumulator, according to claim 14, wherein the agricultural bale equipment further comprisesing:

a bale stabilization module adapted to stabilize at least one agricultural bale of the plurality of bales-agricultural bales accumulated on the load bed,

wherein the controller controls the receipt and/or the accumulation of the plurality of bales-agricultural bales on the load bed by controlling the bale stabilization module.

19. (Currently Amended) An agricultural bale equipment-accumulator according to claim 14, wherein the agricultural bale equipment further comprisesing:

a bale advancement module adapted to advance at least one agricultural bale of the plurality of bales-agricultural bales along the bale receiving axis onto the load bed,

wherein the controller controls the receipt and/or the accumulation of the plurality of bales-agricultural bales on the load bed by controlling the bale advancement module.

20. (Currently Amended) An agricultural bale equipment accumulator, according to claim 13, wherein the agricultural bale equipment further comprisesing:

a bale discharge module adapted to discharge at least one agricultural bale of a plurality of bales agricultural bales accumulated on a the load bed to a ground surface of the agricultural field,

wherein the controller controls the operation of the agricultural bale equipment accumulator further comprises:

by the controlling control of the bale discharge module.

21. (Currently Amended) An agricultural bale equipment accumulator, according to claim 20, wherein the agricultural bale equipment further comprisesing:

a permissive bale discharge module adapted to discharge at least one agricultural bale of the plurality of bales agricultural bales accumulated on the load bed from a bale receiving portion of the load bed to the ground surface,

wherein the controller controls the bale discharge module of the at least one agricultural bale of the agricultural bales by controlling the permissive bale discharge module.

22. (Currently Amended) An agricultural bale equipment accumulator, according to claim 20, wherein the agricultural bale equipment further comprisesing:

a selective bale discharge module adapted to selectively discharge at least one agricultural bale of the plurality of bales agricultural bales accumulated on the load bed from the load bed to the ground surface,

wherein the controller controls the bale discharge module of the at least one agricultural bale of the agricultural bales by controlling the selective bale discharge module.

23. (Currently Amended) An agricultural bale equipment accumulator, according to claim 20, wherein the agricultural bale equipment further comprisesing:

a bale advancement module adapted to advance at least one agricultural bale of the plurality of bales agricultural bales along a the bale receiving axis onto the load bed,

wherein the controller controls the bale discharge module of the at least one agricultural bale of the agricultural bales by controlling the bale advancement module.

24. (Currently Amended) An agricultural bale equipment accumulator, according to claim 20, ~~wherein the agricultural bale equipment further comprises:~~

a bale speed control discharge module adapted to control a rate of speed at which at least one agricultural bale of the ~~plurality of bales~~ agricultural bales is discharged from the load bed to the ground surface,

wherein the controller controls the ~~bale-discharge module~~ of the at least one agricultural bale of the agricultural bales by controlling bale speed control discharge module.

25. (Currently Amended) An agricultural bale equipment accumulator, according to claim 1, ~~wherein the agricultural bale equipment further comprises:~~

a user interface module adapted to provide an interface between the agricultural bale ~~equipment-accumulator~~ and a user,

wherein ~~the controller controls~~ the operation of the agricultural bale ~~equipment~~ accumulator further comprises:

~~by the controlling control~~ of the user interface module.

26. (Currently Amended) A method for operating an agricultural bale equipment accumulator comprising the steps of:

receiving, along a bale receiving axis, agricultural bales of crop material formed by and ejected from an agricultural baler, and accumulating the agricultural bales on the load bed;

determining receiving a location signal representative of a location of the agricultural bale equipment-accumulator located in an agricultural field; and

controlling an operation of operating the agricultural bale equipment-accumulator responsive to the location of the agricultural bale equipment in the field-receiving the location signal.

27. (Currently Amended) A method for operating an agricultural bale equipment accumulator, according to claim 26, wherein the step of determining receiving the location signal of the agricultural bale equipment in the field further comprises the steps of:

receiving a plurality of input signals transmitted by a plurality of global positioning satellites located around earth; and

processing the plurality of input signals to determine provide the location signal the location of the agricultural bale equipment in the field.

28. (Currently Amended) A method for operating an agricultural bale equipment accumulator, according to claim 26, wherein the step of determining receiving the location signal of the agricultural bale equipment in the field further comprises the steps of:

receiving an initialization signal indicative of a starting location of the agricultural bale equipment-accumulator in the agricultural field;

receiving an input signal from a compass;

determining a distance traveled by the agricultural bale equipment-accumulator in the agricultural field; and

processing the initialization signal, the input signal from the compass, and the distance traveled by the agricultural bale equipment-accumulator in the agricultural field to determine the location of the agricultural bale equipment-accumulator in the field.

29. (Currently Amended) A method for operating an agricultural bale equipment accumulator, according to claim 26, wherein the step of controlling the operation of operating the agricultural bale equipment-accumulator further comprises the step of:

receiving and/or accumulating a plurality of bales ~~the agricultural bales by the agricultural bale on the load bed.~~

30. (Currently Amended) A method for operating an agricultural bale equipment accumulator, according to claim 26, wherein the step of ~~controlling the operation of operating~~ the agricultural bale equipment-accumulator further comprises the step of:

discharging at least one agricultural bale of ~~a plurality of bales the agricultural bales by the agricultural bale equipment-accumulated on the load bed~~ to a ground surface of the agricultural field.

31. (Currently Amended) A method for operating an agricultural bale equipment accumulator, according to claim 30, further comprising the steps of:

determining a present number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator;

determining whether the present number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator is equal to or less than a predetermined bale accumulating capacity of the agricultural bale equipment-accumulator;

when it is determined that the present number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator is equal to the predetermined bale accumulating capacity of the agricultural bale equipment-accumulator, then perform the step of:

determining whether the agricultural bale equipment-accumulator is located in or has recently passed through at least one predetermined bale discharge zone located in the field (1135) responsive to the location of the agricultural bale equipment-accumulator in the field;

when it is determined that the agricultural bale equipment-accumulator is located in or has recently passed through the at least one predetermined bale discharge zone, then perform the step of:

discharging the present number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator to the ground surface in or near the at least one predetermined bale discharge zone;

when it is determined that the agricultural bale equipment-accumulator is not located in or has not recently passed through the at least one predetermined bale discharge zone, then perform the steps of:

discharging some of the present number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator to the ground surface prior to reaching a next predetermined bale discharge zone to be reached by the agricultural bale equipment-accumulator as the agricultural bale equipment-accumulator travels a remaining distance from a present location of the agricultural bale equipment-accumulator in the field to the next predetermined bale discharge zone responsive to the location of the agricultural bale equipment-accumulator in the equipment-accumulator field and a location of the next predetermined bale discharge zone; and

continuing with the step of receiving and accumulating the plurality of balesagricultural bales on the agricultural bale equipment-accumulator;

when it is determined that the present number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator is less than the predetermined bale accumulating capacity of the agricultural bale equipment-accumulator, then perform the step of:

determining whether the agricultural bale equipment-accumulator is located in or has recently passed through the at least one predetermined bale discharge zone;

when it is determined that the agricultural bale equipment-accumulator is located in or has recently passed through the at least one predetermined bale discharge zone, then perform the step of:

discharging the present number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator from the agricultural bale equipment to the ground surface in or near the at least one predetermined bale discharge zone;

when it is determined that the agricultural bale equipment-accumulator is not located in or has not recently passed through the at least one predetermined bale discharge zone, then continuing with the step of:

receiving and accumulating the plurality of balesagricultural bales on the agricultural bale equipment-accumulator.

32. (Currently Amended) A method for operating an agricultural bale equipment-accumulator, according to claim 31, further comprising the steps of:

determining a past distance traveled by the agricultural bale equipment-accumulator in the field while the present number of agricultural bales were received and accumulated on the agricultural bale equipment-accumulator; and

determining an average number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator over the past distance traveled by the agricultural bale equipment-accumulator in the field responsive to the present number of bales received and accumulated on the agricultural bale equipment-accumulator and the past distance traveled by the agricultural bale equipment-accumulator in the agricultural field.

33. (Currently Amended) A method for operating agricultural bale equipment-accumulator, according to claim 32, wherein the step of discharging some of the present number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator to the ground surface prior to reaching the next predetermined bale discharge zone further comprises the steps of:

determining the remaining distance between the present location of the agricultural bale equipment-accumulator in the field and the next predetermined bale discharge zone in the field to be reached by the agricultural bale equipment-accumulator responsive to the location of the agricultural bale equipment-accumulator in the field and the location of the next predetermined bale discharge zone in the field;

estimating a future number of bales to be received and accumulated on the agricultural bale equipment over the remaining distance between the present location of the agricultural bale equipment-accumulator in the field and the next predetermined bale discharge zone to be reached by the agricultural bale equipment-accumulator responsive to the average number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator over the past distance traveled by the agricultural bale equipment-accumulator in the field and the remaining distance between the present location of the agricultural bale equipment-accumulator in the field and the next predetermined bale discharge zone; and

discharging the estimated future number of agricultural bales to be received and accumulated on the agricultural bale equipment-accumulator from the load bed to a ground surface prior to reaching the next predetermined bale discharge zone as the agricultural bale equipment-accumulator travels the remaining distance from the present location of the agricultural bale equipment-accumulator in the field to the next predetermined bale discharge zone.

34. (Currently Amended) A method for operating an agricultural bale equipment-accumulator, according to claim 31, further comprising the step of:

determining whether a future number of agricultural bales that the agricultural bale equipment-accumulator can receive and accumulate before the agricultural bale equipment-accumulator reaches the next predetermined bale discharge zone is greater than a remaining number of bales that the agricultural bale equipment-accumulator can receive and accumulate before reaching the predetermined bale accumulating capacity of the agricultural bale equipment-accumulator responsive to determining that the present number of bales received and accumulated on the agricultural bale equipment-accumulator is less than the predetermined bale accumulating capacity of the agricultural bale equipment-accumulator, but prior to the step of discharging the present number of bales received and accumulated on the agricultural bale equipment-accumulator from the agricultural bale equipment-accumulator to the ground surface in or near the at least one predetermined bale discharge zone.

35. (Currently Amended) A method for operating an agricultural bale equipment-accumulator, according to claim 34, wherein the step of determining whether the future number of agricultural bales that the agricultural bale equipment-accumulator can receive and accumulate before the agricultural bale equipment-accumulator reaches the next predetermined bale discharge zone is greater than the remaining number of agricultural bales that the agricultural bale equipment-accumulator can receive and accumulate before reaching the predetermined bale accumulating capacity of the agricultural bale equipment-accumulator further comprises the steps of:

subtracting the present number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator from the predetermined bale accumulating capacity of the agricultural bale equipment-accumulator to determine the remaining number of agricultural bales that the agricultural bale equipment can receive and accumulate before the predetermined bale accumulating capacity of the agricultural bale equipment-accumulator reaches its maximum limit;

determining a remaining distance between a present location of the agricultural bale equipment-accumulator in the field and the next predetermined bale discharge zone to be reached by the agricultural bale equipment-accumulator;

multiplying the average number of bales received and accumulated on the agricultural bale equipment-accumulator over the distance traveled by the agricultural bale equipment-accumulator in the field by the remaining distance between a present location of the agricultural bale equipment-accumulator in the field and the next predetermined bale

discharge zone to be reached by the agricultural bale equipment-accumulator to determine the future number of bales that the agricultural bale equipment-accumulator can receive and accumulate before the agricultural bale equipment-accumulator reaches the next predetermined bale discharge zone;

when it is determined that the future number of agricultural bales that the agricultural bale equipment-accumulator can receive and accumulate before the agricultural bale equipment-accumulator reaches the next predetermined bale discharge zone is greater than a remaining number of agricultural bales that the agricultural bale equipment-accumulator can receive and accumulate before reaching the predetermined bale accumulating capacity of the agricultural bale equipment-accumulator, then perform the step of:

discharging the present number of agricultural bales received and accumulated on the agricultural bale equipment-accumulator from the agricultural bale equipment-accumulator to the ground surface in or near the at least one predetermined bale discharge zone;

when it is determined that the future number of bales that the agricultural bale equipment-accumulator can receive and accumulate before the agricultural bale equipment-accumulator reaches the next predetermined bale discharge zone is not greater than a remaining number of agricultural bales that the agricultural bale equipment-accumulator can receive and accumulate before reaching the predetermined bale accumulating capacity of the agricultural bale equipment-accumulator, then continuing to perform the step of:

receiving and accumulating the plurality of agricultural bales on the agricultural bale equipment-accumulator.

36-60 (Previously cancelled)